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Class I, HEXAPODA.

Order IV, DIPTERA.

ILLUSTRATIONS OF THE ABDOMINAL APPEN-
DAGES OF CERTAIN MOSQUITOES.

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(PLATES IV AND V.)

It has been shown by Mr. F. V. Theobald that the male genitalia of mosquitoes are of value for purposes of identification, and Dr. E. P. Felt has inaugurated the use of them in the definition of genera. Previous to Dr. Felt's work the genitalia of our species were little known and but few of them figured. It is the purpose of the present article to illustrate some additional species to those which Dr. Felt has made known.

Deinocerites cancer Theob. (Plate IV, Fig. 1.)

Side pieces stoutly conic, basal lobe strongly trifid; clasp thick, truncate, clawed at tip, hirsute on outer aspect. Harpe long, spatulate, smooth, unjointed. Harpago rounded, concave, crested by stout spines. Uncus slender, concave, nearly as long as the harpago. Appendage of the eighth segment undeveloped.

Wyeomyia smithii Coq. (Plate IV, Fig. 2.)

Side piece conic, bent from side view, rather transparent; two stout setae within; clasp enlarged, membranous, inflated, irregularly lobed, with a few spines. Harpes and harpagones likewise inflated

and irregular. Unci long with terminal teeth. Appendage of the eighth segment distinct, setose.

Grabhamia æstivalis Dyar. (Pl. IV, Fig. 3.)

Side piece elongate, outer lobe distinct and running well toward base; inner lobe rounded, spinous; clasp filamentous with long articulated terminal spine. Harpe jointed, basal part long, a little curved, uniform, apical filament small, less than half the length of the basal part. Harpago smooth, elongate, outer part narrow. Unci invisible. Appendage of the eighth segment distinct, setose.

Grabhamia varipalpus Coq. (Plate IV, Fig. 4.)

Side piece elongate, outer lobe undeveloped, inner rounded and bearing many long fine setæ; clasp filamentous with long terminal spine. Harpe jointed, basal part well curved, uniform, apical filament long, broad, as long as the basal part. Harpago smooth, elongate, outer part narrow for over half its length. Unci invisible. Appendage of the eighth segment distinct, setose.

Grabhamia curriei Coq. (Plate IV, Fig. 5.)

Side piece elongate, outer lobe distinct, reaching toward base; inner lobe rounded with short setæ; a stout terminal seta; clasp filamentous with long terminal spines. Harpe jointed, basal part slender, straight, terminal filament broad, as long as the basal part. Harpago curved, concave, narrowing outwardly. Unci invisible. Appendage of eighth segment narrow and elongate, setose.

Pneumaculex signifer Coq. (Plate IV, Fig. 6.)

Side piece elongate, conic, no outer lobe, inner lobe a slight prominence, a stout curved seta on middle of inner side; clasp filamentous, slightly enlarged outwardly, articulated tip moderate, multiple. Harpe short, conic, concave with trifid apex. Harpago bent, concave with notched tip. Unci invisible. Appendage of eighth segment undeveloped.

Stegomyia fasciata Fab. (Plate V, Fig. 7.)

Side piece short, conic, scarcely longer than wide, without lobes but the inner area finely setose; clasp moderate, constricted somewhat near base, the articulated tip short. Harpe long, broad, chitinous, unjointed, curved at tip and with a branch inwardly near base, smooth. Harpago basal, short, broad, slightly dentose at tip. Uncus a small setose lobe. Appendage of eighth segment undeveloped.

Feltidia cyanescens Coq. (Plate V, Fig. 8.)

Side piece elongate conic, basal lobe very slight, setose ; clasp thick, inflated, reticular, the tip narrowed with a short spine. Harpe curved, concave, spined at tip. Harpago cylindrical, truncate. Appendage of eighth segment undeveloped.

Feltidia signipennis Coq. (Plate V, Fig. 9.)

Side piece elongate conic, basal lobe rudimentary, setose ; clasp thick, inflated, reticular, the tip narrowed with a short spine. Harpe curved, concave, slightly spined at tip.* Harpago cylindrical, truncate. Appendage of eighth segment undeveloped.

Theobaldia incidens Thom. (Plate V, Fig. 10.)

Side piece elongate, conic, lobes undeveloped ; clasp filamentous with minute terminal spine. Harpe bent at tip, stout, uniform, with irregular teeth. Harpago cylindrical, truncate. Unci invisible. Appendage of the eighth segment broad, large, setose. A row of very few short tooth-like spines at the tip of the seventh segment.

Melanoconion atratus Theob. (Plate V, Fig. 11.)

Side piece thickly conic, lobes continuous, the outer with a leaf-like scale, the inner with stout articulated spines ; clasp enlarged at the base, slender outwardly, with minute terminal spine. Harpe stout, concave, narrowed at tip. Harpago small, slender. Unci and appendage of the eighth segment invisible.

Culex tarsalis Coq. (Plate V, Fig. 12.)

Side piece elongate, outer lobe distinct, with leaf-like scale and stout spines recurved at tip ; no basal lobe ; clasp filamentous, curved, with minute terminal spine. Harpe conic, heavily spined at tip ; an additional pair of appendages at base with trifid apex. Harpago broad, acuminate. Uncus long concave, narrowed outwardly. Appendage of the eighth segment stout and broad, setose.

EXPLANATION OF PLATES IV AND V.

Genitalia of mosquitoes, the parts of one side only shown.

1. *Deinocerites cancer* Theob. from Jamaica.
2. *Wyeomyia smithii* Coq. from Massachusetts.
3. *Grabhamia æstivalis* Dyar from British Columbia.

* The apparent difference in the direction of curve in the harpes shown in figures 8 and 9 is apparently unimportant, as I have another slide of *signipennis* in which the curve is inward as in *cyanescens*.

4. *Grabhamia varipalpus* Coq. from British Columbia.
5. *Grabhamia curriei* Coq. from California.
6. *Pneumaculex signifer* Coq. from Virginia.
7. *Stegomyia fasciata* Fab. from Texas.
8. *Feltidia cyanescens* Coq. from Texas.
9. *Feltidia signipennis* Coq. from Mexico.
10. *Theobaldia incidens* Thom. from British Colombia.
11. *Melanoconion atratus* Theob. from Jamaica.
12. *Culex tarsalis* Coq. from California.

NEW NEMATOCEROUS DIPTERA FROM NORTH AMERICA.

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The present paper is founded primarily on collections made during the summer of 1903 by Messrs. R. P. Currie, H. G. Dyar and A. N. Caudell in British Columbia, and by Mr. H. S. Barber, chiefly in northern California. Messrs. Currie and Barber paid especial attention to the Diptera and succeeded in obtaining many rare and interesting specimens. Only those belonging to the section Nemocera have as yet been studied and the descriptions of the new species are appended herewith. To these are added descriptions of several species received from various sources, bringing the number of new species described in this paper up to 41.

Dicranomyia signipennis, new species.

Distinguished from the described species by the spotted wings in connection with the short auxiliary vein, the apex of which is very near the base of the second vein. Brown, the humeri, scutellum, a spot in front of it, the genitalia, halteres and legs, yellow, a black band before apex of each femur, apices of tarsi brown. Antennæ reaching nearly to base of wings, joints three to thirteen of nearly an equal length, the last three or four of these slightly longer than wide. Thorax opaque, grayish pruinose, mesonotum marked with three blackish vittæ. Hypopygium of male rather small. Halteres not unusually long. Wings glabrous indistinctly mottled with pale gray and whitish hyaline, stigma brown, a brown cloud at apex of auxiliary vein, another at forking of second and third veins, one on vein at base of discal, extending over small and hind crossveins, a fourth on veins at apex of discal cell; marginal crossvein close to apex of first vein, auxiliary crossvein close to apex of the auxiliary vein, first section of second vein one and one half times as long as first section of the third, base of discal cell far beyond base of the submarginal, discal cell closed. Length 7 mm.